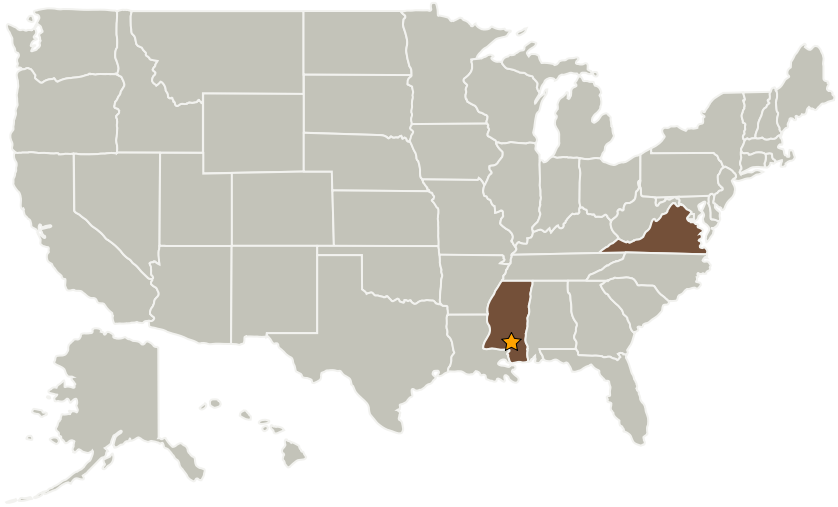
Health-Enabled Smart Sensor Fusion Technology, Phase II

Completed Technology Project (2008 - 2010)

Project Introduction

A long-term center goal at NASA's John C. Stennis Space Center (SSC) is the formulation and implementation of a framework for an intelligent rocket test facility (IRTF). The IRTF is to provide reliable, high-confidence measurements for a variety of propulsion test articles. Smart sensor components play key roles in providing the distributed intelligence needed to perform diagnosis of its overall health and to further develop the Integrated System Health Management (ISHM), which has been identified as a key component to design exploration systems for the mission to go back to the Moon and explore Mars. Requirements to achieve this mission include improvements in safety, life-cycle costs, and autonomous operation of exploration systems. The objective of the Phase II effort is to complete the development of the sensor fusion based on the architecture that was presented in Phase I. Specifically, we intend to succeed in: (1) Providing health condition monitoring capability at the intelligent transceiver; (2) Providing analytic and diagnostic intelligence at the intelligent transceiver; (3) Enhancing IEEE 1451.x based standard for sensor data management and distributions; (4) Providing appropriate communications protocols to enable complex interactions to support timely and high quality flow of information among the system elements.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
Mobitrum Corporation	Supporting Organization	Industry	McLean, Virginia

Primary U.S. Work Locations	
Mississippi	Virginia

Project Transitions

February 2008: Project Start

February 2010: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.3 Reliability and Sustainment